The politics of social filtering

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Abstract

Social filtering—the selective engagement with people, communication and other information as a result of the recommendations of others— has always taken place. However, the possibilities of the internet combined with the growth of online social networking activities, have enabled this process to become rapidly more extensive, easier and potentially problematic. This paper focuses on analysis of the politics of social filtering through social network sites. It argues that what is needed is both a closer examination and evaluation of these processes and also the development of a framework through which to begin such an evaluation. There is also a second intent: to (re)assert the argument that any analysis necessarily needs to take into account and critique the development, implementation and use of technologies (this includes the software, algorithms and code) themselves as well as the people that build and use them.

Keywords

Social filtering, SNS, politics, algorithm, personalisation, surveillance, code, technology

Acknowledgement: The author would like to thank the editors and anonymous reviewers for their useful and constructive comments on this article. She would also like to thank Uri Hanani, Bracha Shapira and Peretz Shoval (and Springer Science+Business Media B.V) for their permission to reproduce their information filtering systems classification figure in this article.

The politics of social filtering

Introduction

> Facebook is an increasingly vital source of news for this reason: Our friends and family are more likely to know what's important and relevant to us than some newspaper editor in Manhattan. (Parisi, 2011: 66)

Social filtering—the selective engagement with people, communication and other information as a result of the recommendations of others— has always taken place. As Mark Granovetter's (1973) work on social ties indicated, people have utilised their connections with others to manage and to support their lives. This applies across a range of terrains: from emotional support to the reduction of uncertainty through the provision of information. Granovetter (1973) noted that so-called strong ties were useful and drawn upon for social support and emotional connection, whereas weak ties which were composed of a more heterogeneous range of people, were useful for things such as finding job opportunities. This use of people or social networks is a form of social filtering: one way of sorting, collating and organising personally relevant information.

Since the adoption of the internet and the growth of social networking possibilities online, social filtering has become rapidly more extensive, easier and

potentially problematic. The possibility of enacting many aspects of our lives, including our relationships, online and the data trail that these leave have enabled a level of intermeshing of lives, information and practices and also possibilities for surveillance and manipulation of these, to a level that was previously unimaginable.

Internet information filtering is essential: there are simply too many types, locations and forms of information for an individual or community to navigate successfully without some sorts of filtering mechanisms in place. The extent of need for this process is such that technological constructs in the forms of search engines, browsers, bots and applications and their underlying codes and algorithms need to be engaged: it is not possible to manage this scale of information processing with human activity alone. As our lives meld increasingly with and through the online applications and sites, as technologies become increasingly interconnected and applications and software increasingly interoperable, it seems timely to raise questions about the politics and social implications of social filtering via technology.

In 2011, Eli Pariser published a book entitled, *The Filter Bubble: What the Internet is Hiding from You*. This book, which discussed the increasing personalisation of information selection and presentation and the underlying data capture and compilation processes taking place online, raised questions about the ways in which internet filters operate and some of the political and ethical implications of these. This book brought together many of the issues that have been

gathering increasing attention both in the press and amongst academics and practitioners. Questions such as what data is being collected from whom and by whom, what is being done with this data and what might this mean for the ways in which we navigate online (amongst other things) are being asked. Pariser also asked whether this tailoring of content and advertising to presumed interests on the basis of online information seeking and social practices through the use of specific algorithms and software led to a narrowing of political understandings and the reduction of diversity and in tolerance, as a result.

This paper explores social filtering undertaken through social networking sites (SNS). It understands there are multiple locations and practices of social filtering, however, since social network sites are utilising the mass of data on users, and their connections for social filtering purposes are becoming increasingly extensive in form and breadth, such a focus is warranted. The future potentials of this accumulation of data are only beginning to be evident. What is needed is both a closer examination and evaluation of these processes and also the development of some frameworks through which to begin such an evaluation. The paper begins to frame such an approach. There is also a second intent; to (re)assert the argument that any analyses necessarily need to take into account and critique the development, implementation and use of technologies (this includes the software, algorithms and code) themselves as well as the people that build and use them.

Technologies in this context often function almost autonomously from any direct human direction once set up. And the scale of what they can do is at times outside of the possibilities and reasonable time frames of what individuals or even groups of people can physically calculate, envisage or meld. Technologies enable and produce outcomes and actions that have effects on the information they handle and on the people and actions they engage with. Thus they should not be ignored in any evaluative exercise.

It seems timely also to embrace the assertion made by Beer and Burrows (2007) that,

> At a time of rapid socio-cultural change a renewed emphasis on good—critical, distinctive and thick—sociological descriptions of emergent digital phenomena, ahead of any headlong rush into analytics, seems to us to be a sensible idea. We need to understand some of the basic parameters of our new digital objects of sociological study before we can satisfactorily locate them within any broader frames of theoretical reference. (1.1)

Filtering: what is it?

> Information filtering is a name to describe a variety of processes involving the delivery of information to people who need it. (Belkin & Croft, 1992: 29)

As the Belkin and Croft definition above notes, information filtering describes processes of information delivery to people. This process can be enacted by people, by people and institutions, by people and technologies, or by technologies alone. It

involves, though it is not made explicit here, decisions made as to information to be excluded and information to be included. This seemingly innocuous definition, on closer examination, contains many less innocuous ways of reading and understanding information filtering. For example, it could be asked who are the people, or for what purposes do they require this information, where is the information gathered and in what form is it located, gathered and distributed? Where might information filtering take place, and who might own, manage and design the systems and mechanisms that enact this filtering? And importantly, how much do the people who are the 'beneficiaries' of this filtering (understood variously) understand about the processes and the implications these questions pose?

This paper explores one 'form' of information filtering—social filtering which loosely describes the reliance on, and use of, people and social networks as part of those processes to locate, deliver and share information. As noted in the introduction, this is something we have all done since time immemorial: recommendations and referrals, word of mouth, gossip and so forth are all ways in which we have located, evaluated and utilised information …and people. However, quite obviously, the use of various systems of social filtering online makes these processes more visible (in some ways and less visible in others), the introduction of technologies to facilitate this make the processes more ubiquitous and extensive as we increasingly manage our lives through connected technologies.

Online (and this includes consideration of the use of mobile devices such as smartphones) social filtering is enabled through people, through a combination of people and software, and through software alone. It can take the form of collaborative filtering which identifies and reveals information on the basis of user or peer recommendations, shared taste assumptions etc (for example, Reddit or Amazon) and social network filtering whereby the habits and tastes of your social network are used to locate, suggest and filter information to you, the user (e.g. Digg, Facebook) (Lerman, 2006). Halavais (2009: 161) describes collaborative filtering systems as 'distributed approaches to discovering what information is collectively regarded as most interesting.' Often a combination of collaborative and social network approaches is employed. Information can be pushed at you, the user, on this basis or it can be used to help you pull that information and refine it to increase individual relevancy.

Where it differs from 'offline' social filtering practices in the past is that other functions or affordances coincide with this (heightened) attention to filtering. By incorporating this functionality into a technical construct such as recommender algorithms or a 'Like' button on Facebook, a different relationship between the data entered, the relationships enacted (including the performance) between participants (who include the people, the site, the algorithms that drive the filtering, etc) is orchestrated:

a) the filtering or recommendation becomes more explicit, formalised and easily accessible (than it may have been previously) to the participants, their social network and to other interested parties;

b) it potentially increases personal relevance in information retrieval practices inasmuch as people are able to inform their choices through trust in the system of recommendations (and it has been noted in the literature that there is a strong degree of trust placed in peer recommendations. See, for example, the discussion in Walther et al., 2011). This statement does not take into account that the options presented by the coding behind the interface may 'push' certain information to the forefront that may in turn restrict or narrow the relevance range (Pariser, 2011);

c) it relies predominantly on code or algorithms to manage the actions (which are black-boxed—the users have little knowledge of the information that is filtered out, the logic informing the code or its determining logic etc) (Balnaves and Willson, 2011: Bucher, 2012); and

d) it enables other simultaneous actions to take place, such as data mining. The latter point is related to c) above inasmuch as the user may well be completely unaware of the other purposes to which their information, their choices and so forth are being captured, manipulated or repurposed (Bodle, 2011; Beer, 2008; Brunton and Nissenbaum, 2011).

e) There is an additional layer to this in that some additional filtering may already take place in terms of the identification and selection of 'friends' to be included in an individual's network. However, this is also becoming increasingly technologised with tracking and matching possibilities that monitor online navigation histories, practices. As a result, the sites filter and suggest possible friend matches to the user.

Social or collaborative filtering captures and maps the relations between people largely based on assumptions that 'people who like this also like that' or alternately, that 'people who like me also like this'. (Smith et al., 2008) There is an assumption—drawn in part from network theory amongst others—that a certain degree of homophily exists between connections, nodes ….or friends. This would also fit within Granovetter's understanding of strong ties.

A reverse type of social filtering is also taking place; for example, the mapping of likes and then deducing relationships—if all these people who like this also like that, and you also like this, then it is more likely that you will also like that. Similarly, the existence of similar tastes and practices may suggest a possible friend link (friend suggestions). Clearly the more information that can be obtained by an SNS about individuals, their relationships and practices, the more interlinking, matching, suggestions and aggregation that can take place.

The internet and other connective technologies have enabled the collection, dissemination and aggregation of information on a scale previously unimaginable. A variety of actors (understood as users, systems and software) employ a range of human and technological systems to sort, to identify patterns and to provide links between seemingly dissociated or heterogeneous elements. The ways in which these are done are multi-levelled, interconnected and complex. The challenge is to find a manageable way to begin unpacking these relationships and processes so as to be able to explore what they in turn might mean more broadly.

An information filtering model

Hanani, Shapira and Shoval (2001: 206) present a classification model to talk about information filtering systems. This is a generic model that can be used to interrogate all information filtering systems; it can be used here more specifically as a tool to unpack or make clearer some of the questions prompted at the various stages, or in Belkin and Croft's terms, processes to filtering information. Figure 1 reveals a range of processes that identify or describe how information or social filtering is physically managed. This makes the model useful initially as a way to unpack an often seamless process that is not transparent or apparent automatically to the user or at the interface.

[Figure 1 goes here]

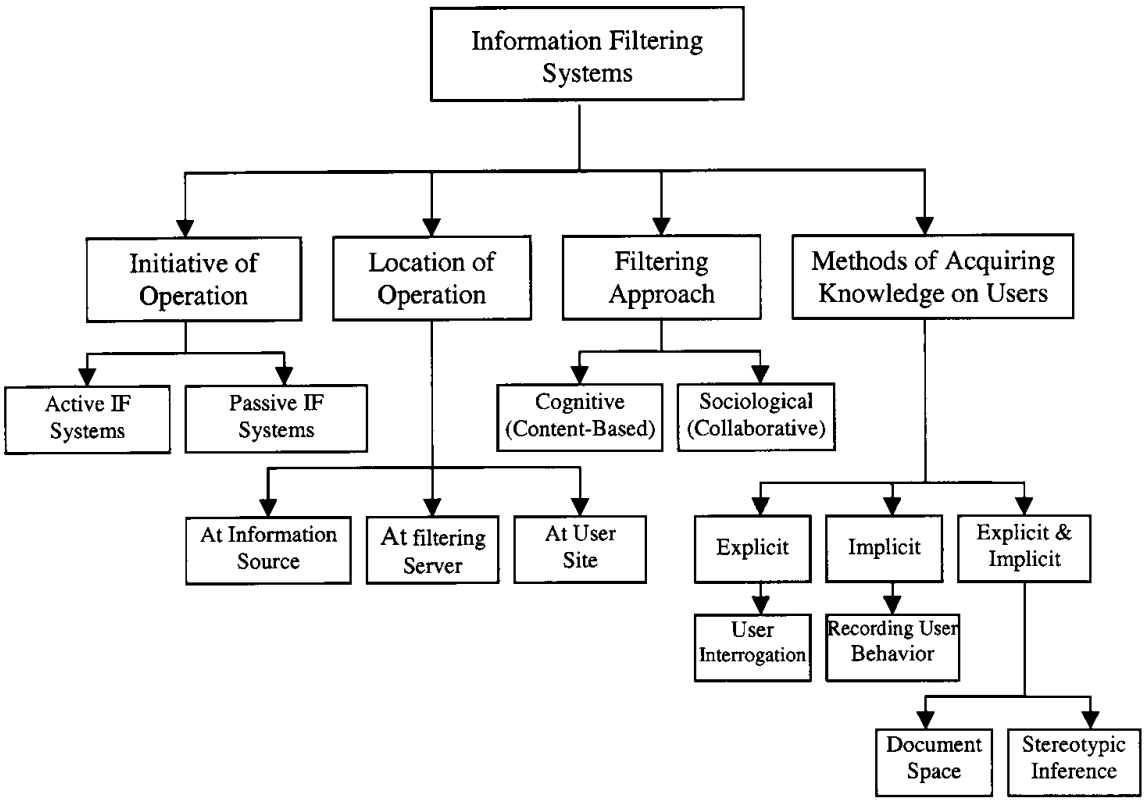

Figure 1. An Information Filtering System Model (Hanani, Shapira and Shoval, 2001:206, Figure 1: Classification of IF systems, reproduced with kind permission from Springer Science+Business Media B.V.)

The Hanani et al. (2001) model details a number of processes or 'points' where information decisions are made and particular processes put in place. The first identifies *how filtering is initiated*, whether active, with information being actively sought, or passive, with the selective receipt of information with some information being blocked or omitted; secondly, *the location of the operation*, for example, where

the source of information is located or to be found and processed, via filtering servers, at the user's site, and so forth; thirdly, the *approach to filtering*, distinguishing between cognitive and social filtering; and finally, the *method of acquiring knowledge about users*, distinguishing between explicit, implicit and combined methods (Hanani et al., 2001: 206). We might want to also include acquiring information about user's social networks to this list. Many, if not all, of these processes rely on the intersection of human and technological action.

This level of detail or unpacking of processes provides an instrument or analytical tool to analyse particular information filtering systems. For example, using this model, each aspect of Facebook's social filtering processes could be unpacked, identified, labelled and interpreted. Questions about how information can be acquired about Facebook users could be seen for example to be a combination of all three options outlined in the model—explicit, implicit, and a combination— through the use of individual user profiles, and capturing individual and friend online interaction. Users and their actions are clearly central to the provision of much of this information: this personal information then becomes the currency, at one level, for the design and marketing of games and other applications by third party providers. It also becomes the currency, at another level, for Facebook to use to entice advertisers to buy access to this market, and for advertisers to then target particular users and practices. Thus the model enables some of the many, complex details of Facebook or

other SNS (e.g. Google Plus, Orkut or MySpace but there are many more...) social filtering practices to be identified and discussed. Table 1 offers one translation of the model to the analysis of some of the filtering mechanisms of Facebook and of GooglePlus, two SNS popular in Australia and elsewhere (though Facebook has been more extensively adopted than GooglePlus, the inclusion of GooglePlus is also useful given its position in the Google conglomerate and the cross-platform, cross-application exchange of information that this relationship enables—a topic for another article).

The mechanisms selected are not exhaustive; they are chosen purely for illustrative purposes. Like and +1 are offered by the SNS for users to endorse options, comments, products and so forth both within the site but also on external sites that are linked to the SNS. Smart lists, circles and friend lists are classification functionalities offered by the SNS for users to employ in their social connection management (both SNS have given these classificatory systems further granularity between the time of researching and of publishing this article). Open Graph or Ticker enable the cross platform sharing and synthesis of activities between social connections, such as watching movies, listening to music and so forth. There is more complexity to the filtering than is encapsulated below (for example, do you allocate agency to the human user who utilises a functionality or to the functionality that manages the process?); again this selection has been generalised for illustrative purposes only to

reveal the potential usefulness of applying such a model but also to draw out some of these questions.

[Table 1 here on translation of model to FB and GooglePlus]

Filter mechanism	**How**	**Location**	**Approach**	**Method: info on users**
Like, +1,	Active –user	interface	Collaborative-recommender	explicit
Smart lists, Circles, Friends	Active – user Passive – SNS	interface server	Social Cognitive?	Explicit Explicit and implicit
Open Graph, Ticker	Passive	Server?	Social and cognitive?	Implicit and explicit

Table 1: application of model to some of GooglePlus and Facebook filtering mechanisms

Using Hanani, Shapira and Shoval's information filtering model (or any other similar model) as a means to unpack filtering processes only takes us so far. It does not for example, directly answer the 'who, what and why' questions that we need to be answered in order to explore these mechanism's potential political and social implications. It can, however, be used to prompt these questions as the brief details

about Facebook and GooglePlus above in Table 1 hinted. For example, if the particular mechanism being examined uses stereotypic profiles in order to filter information, then the question can be asked as to who decides on these profiles, for what purposes have they been utilised, how were these profiles determined (and relatedly, what might have been left out and what might that mean), and so forth (Cheney-Lippold, 2011). However, as is also evident in the table above, the process can be multidirectional with different end-users being identified and different processes used. For example, the 'Like' or +1 button are used by the individual user to indicate an information content preference (active) and then this information is received by others (passive) with that information also being collected by the SNS and third party interests for marketing, etc (both passive and active).

The complexity of these relationships can be seen by exploring the intersections and contributions of one small section of this interaction: the users. As Van Dijck (2009: 47) notes, and it is worth quoting at length,

> [I]t is crucial to understand the new role of users as both content providers and data providers. Besides uploading content, users also willingly and unknowingly provide important information about their profile and behaviour to site owners and metadata aggregators. Before users can actually contribute uploads or comments to a site, they usually have to register with their name, email address and sometimes add more personal details such as gender, age, nationality or income. Their subsequent media behaviour can be minutely traced by means of databots. More importantly, all users of UGC sites unwittingly provide information because IP

addresses—the majority of which can be connected to a user's name and address— can be mined and used without limit by platform owners. Permission to use metadata towards specific purposes are commonly regulated by a site's service agreements (Terms of Use), which users are required to sign. Metadata can be mined for various purposes, from targeted advertising to interface optimization, but the bottom line is that users have no power over data distribution.

In the above table, users, databots, site owners, metadata aggregators are all involved in the circulation of information in and through the site. Thus, in any social filtering analysis, it becomes necessary to extend the model to ask for example, who might be the stakeholders, actors or agents— those that have influence on the process, are impacted by the process, and have vested interests in the process—in a particular system. For example, some of the information filtering mechanism 'stakeholders' could be identified as in Figure 2 below.

[Figure 2 goes here]

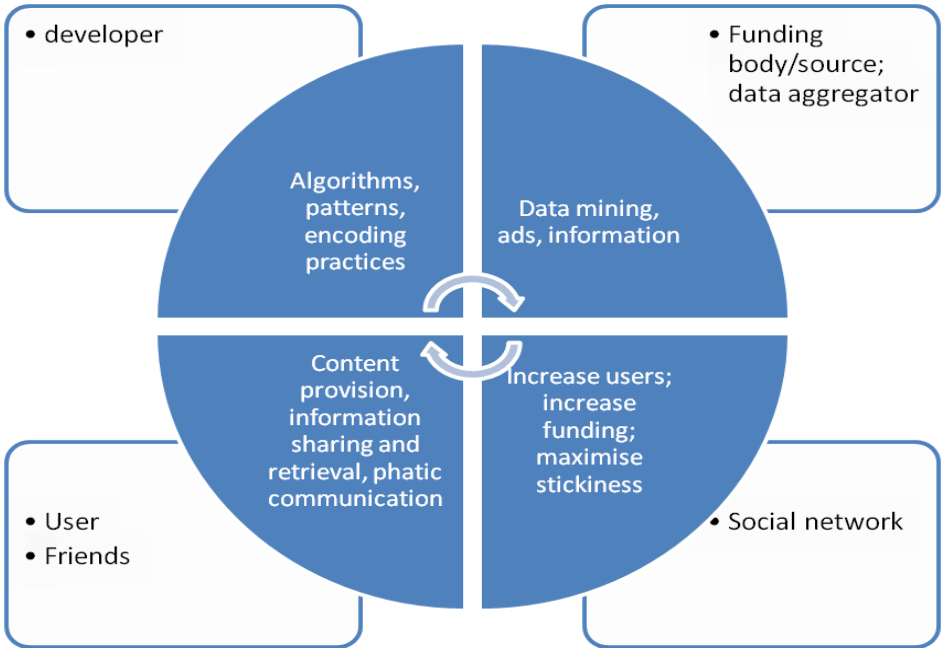

Figure 2: Information filtering 'stakeholders'

All of these stakeholders or, alternately, actors, within this particular configuration are differently involved, and interact with the other stakeholders and mechanisms in various ways. They also have their own particular interests and desired outcomes in mind that factor into how they engage and what they produce (Beer, 2008; Berry, 2011). And while there are also different power differentials to take into account, all of the stakeholders play an important part in the functioning of the SNS and its social filtering processes. To illustrate further, these stakeholders might be:

1. developers and designers (whose intent is to create/replicate peoples' tastes, behaviours etc, through coding, algorithms and/or to derive functional working code that interacts smoothly within and across sites and platforms)
2. funding party—this could be a corporation, an aggregator such as Acxiom (Balnaves and Willson, 2011) or Choicepoint (Brunton and Nissenbaum, 2011), advertisers or marketers who wish to tap into social networking processes, or a volunteer body who have particular motivations in being involved and want particular outcomes—e.g. data mining, inference and shaping of purchasing practices, building networks of influence, etc. It can also be multiple with a site funding the software, applications and platforms but seeking to also access alternate capital through an additional layer of outside funds by third parties (see 3. below)
3. the service provider or 'location' such as an SNS—in order to be viable the site providers need to entice and retain users and their social networks. They do this through increased site and protocol functionality and offering users additional features such as game apps. This effort is also undertaken to enable the selling of advertising or access to its users in order to generate capital (Fuchs, 2011: 148; Beer, 2008)
4. the user who is interested in initiating, curating, sustaining and cultivating connections and content. (Halavais, 2009: 168) 'Digg and similar websites

may not be actively seeking community as their goal, just as social bookmarking sites like del.icio.us do not have that intent. But by making the actions of their users transparent to a certain degree, they provide the opportunity for sociability and the creation of social capital.'

5. social network, social graph—or in Facebook terms, a user's trusted communities—that contribute to the content, the interaction and the data derived from these activities.

To this list, we could also add roles played or actions executed by the actual software, code and algorithm and infrastructure (and questionably, the data itself that is extracted, manipulated, created and shared) that enables these actions to take place.

The human-technology relationship: the how?

> Regardless of the nature of programming, the code created is the manifestation of a system of thought—an expression of how the world can be captured, represented, processed, and modelled computationally with the outcome subsequently doing work in the world. Programming then fundamentally seeks to capture and enact knowledge about the world—practices, ideas, measurements, locations, equations, and images—in order to augment, mediate, and regulate people's lives. (Kitchin & Dodge, 2011: .26)

> [C]ode acts, fixes data, controls devices and communicates to other actors, and acts as a space for various forms of practices to take place. But it does not do so without limits…computer languages remain constrained in what may be 'said'due to the requirements that the computer in the final instance understands it. (Berry, 2011: 34-35)

Any examination of online activities necessarily must take into account the role played by the technologies, including the software, the code, and the infrastructure in addition to the practices that are enacted by people (Thayne, 2012). Technologies institute a range of processes and practices; they provide structures and afford many applications and outcomes as well as constraining or limiting others. These technologies, funded, developed, implemented, and used or appropriated by people, necessarily represent or have encoded within them and their intended outcomes various world views, politics and epistemologies (Kitchin and Dodge, 2011; Berry, 2011; Galloway, 2004; Bucher, 2012). For example, Facebook identify and outline three elements of social design for application developers to consider that they believe are essential for effective social online engagement. These elements are: (utilising) community, (building) conversation and (curating) identity (https://developers.facebook.com/socialdesign/). Such an understanding is manifest and incorporated into the technological functions that have been adopted on the site: *community*— friends function; *conversation*— messages, walls, status updates, content sharing; *identity*—profiles, Likes, content sharing and recommendations.

Latour refers to this instantiation practice (use of technology to enact a human action or practice) as delegation (Johnson/Latour, 1988). The technologies—in their development and the ways that they are employed—-have various roles and actions delegated to them that in turn have political consequences. These delegations

necessarily enable and also limit various actions, practices and indeed people. In his discussion of door closing technology— a door groom— he notes that,

> Neither my little nephews nor my grandmother could get in unaided because our [door] groom needed the force of an able-bodied person to accumulate enough energy to close the door. To use the classic Langdon Winner's motto (1980), because of their prescriptions these doors discriminate against very little and very old people. (Johnson/Latour, 1988: 302)

Technological design includes specific decisions that have material impacts on people's lives. The door groom above required a certain amount of force to use it; something that smaller or frail people were therefore unable to employ. Early keyboard and computer programming design was not able to accommodate or recognise some non-English characters or languages thus precluding some populations from easy participation. While the ways in which this understanding of technological delegation has been adopted can lean towards the deterministic (for example, Kitchin and Dodge's assertion that software is an actant: "it possesses agency, explicitly shaping to varying degrees how people live their lives" (Kitchin and Dodge, 2011: 39)), it is unquestionable that these technologies have an almost semi-autonomy whereby their practices and possibilities must be included in any political and ethical examination (Geiger, 2011).

These technological processes intersect with human intent and desires and appropriated/employed in a range of ways that add to the complexity of any

evaluation. This is part of the secret of their technological successes: People, for example, are willing to allow themselves to become data subjects in order to enable their access to social spaces, or to 'Like' products in order to receive benefits from producers but at the same time to actively participate in shaping their public identities.

It may be, as Kitchin and Dodge (2011: 11) suggest, that...

> [S]oftware-driven technologies induce a process of interpellation, wherein people willingly and voluntarily subscribe to and desire their logic, trading potential disciplinary effects against benefits gained. And the benefits are often substantial and, in a very quotidian sense, irresistible. Perhaps rather than trying to determine whether the work software does is good or bad, it is better to see it as productive in the broad sense—it makes things happen.

These are not straightforward, nor are they simple, processes to unpack. For example, as the table below explores, social filtering practices are initiated and enacted in different ways, for different reasons and with different implications as a result. They are enacted through specific applications or functions such as the +1 button, and by the enabling of interoperability between sites and applications that entail information to be meshed, melded and manipulated. The table below returns to the examples discussed earlier in order to illustrate the complex intersections of use, differing relevance or investments for stakeholders:

Technology Example	*Function*	*Social Use*	*Individual Use*	*Institutional Use*
Like, +1,	Filter content	Phatic maintenance, social capital	Curation; identity performance	Relevance, increased user value/stickiness-push
Smart lists, circles	Filter people	Classification, reflection, relational function identification and role delineation	Curation, relationship creation, self identity, enhance site-use functionality	Relational data, Alternate filter mechanism; navigation histories, Context setting - pull
Open Graph, Ticker	Filter content using people's behaviour	'frictionless sharing' Connective & integrative structure	Identity performance, efficiency	Network, habit, taste data; target audiences, interoperability breadth, depth

Table 2: Social filtering examples and functional roles they fulfill.

These online social filtering practices are also enacted according to different degrees of visibility depending upon the level of action and the perspective or positioning of the stakeholder. For example, the average user generally only 'sees' activity and content visible at the interface or on the screen of their mode of connection (pc, mobile, etc). On Facebook, they see individual profiles, posts, numbers of friends, and presentations of self that are created by a combination of self-

creation (what the user posts, their Likes, affiliations and their profile), what is shared with others, and what others share or post about the user (including the SNS), and online content sharing practices.

What is less, or not visible, are the processes that are taking place off-screen. For example, the user may guess at the matching, sorting and collection of data on habits, tastes, preferences, or demographics that is taking place via the use of software algorithms and functions but they will not be able to see who or what is collecting, merging, sorting that data and for what purposes. Similarly, they don't see the stereotypic assumptions that may be applied to that data, or the ways in which it is sorted or categorised according to its usefulness. They don't see the processes that lead to advertising choices being made and pushed at the user (Cheney-Lippold, 2011), or the social networking sites algorithms and code that lead the site to determine 'interesting news' that will sit at the top of their news stories (Bucher, 2012). They do not know how it is that possible friends are suggested to them and on what basis this suggestion has been made. Nor do they know what information they are being excluded access to. Bodle (2011:321) observes that,

> Present conditions for sharing through social applications include a lack of control over one's own information, a lack of transparency as to what information is being collected, and how this information is being used—undermining privacy, data security, contextual integrity, user autonomy and freedom.

These largely invisible (to the user) processes limit the potential to critique, to question or to alter them. Other bodies involved in the filtering process such as the third party applications developers will have a different experience of transparency—different type of visibility and invisibility also—evident to them in their transactions with these sites. Models such as the information filtering model above, supplemented with some additional 'questions' may assist with revealing these levels of activity and the possible consequences of their actions.

An examination of the politics of social filtering online also needs to consider the convergence or interoperability of different applications, programs and platforms. There is a strong move towards increasing interoperability across platforms and applications. For example, third party apps such as Zynga's social games applications intersect with Facebook; Ticker will enable the envelopment of apps, websites and other third party offerings into a Facebook environ; +1 and Google Plus intersects across a range of Google offerings. Open API (Application Programming Interface) and Open Graph extends the capacity for interoperability and data sharing.

As the discussion herein would also suggest, any consideration of social filtering therefore needs to consider the processes across the various levels of social filtering execution, the range of (vested) interests involved and the omissions or those people, things, interests and technologies who are not included or involved in these engagements/transactions.

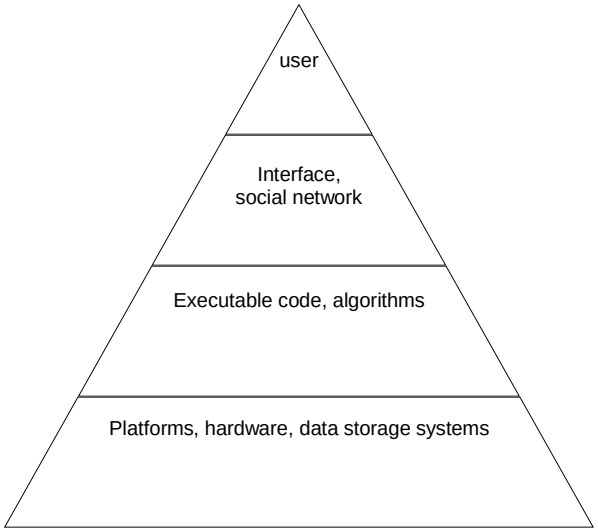

Figure 3. Various levels of action and decision making 'points'

The power and politics of social filtering

As the above discussion suggests, there are clearly a diverse range of political possibilities and implications as a result of these developments. Many of the political implications noted by commentators have been made about other technologies and processes and either extended to filtering as a whole or applied to a subset of the process. For example, the data collection that takes place that is associated with online social filtering has many commentators expressing concerns about individual controls over the personal information, data aggregation activities of major aggregators such as Acxiom or Choicepoint.

Other potentials claimed include, but are not limited to, the following:

- the reduction of exposure to diversity through increased personalisation (Pariser, 2011), an decreased sense of common good (Vaidhyanathan, 2011: 139) or the creation of bounded information communities and the elimination or exclusion of dissent (Gerlitz and Helmond, 2011; Sunstein, 2001; Ippolita et al., 2009);
- Concerns over the surveillance potential of data bodies and data histories: with state, and corporate decisions impacting on groups and individuals on the basis of data sets and analysis/risk management strategies (Brunton and Nissenbaum, 2011; Beer, 2008);
- reduction of ambiguity and the reinforcing of stereotypes (Crutzen and Kotkamp, 2008: 204; Pold, 2008: 219; Beer 2008);
- public/private conflation with the renegotiation and commodification of social relations and identity (Fuchs, 2011: 156, Thompson, 2011; Thayne, 2012);
- rationalisation and quantification of relationships and people to become data and therefore seen purely as useful resources that can be sold or exploited (Thayne, 2012);
- manipulation of results in ways that might impact on particular populations, demographics, or individuals financially, socially or politically (Gerlitz and Helmond, 2011);

- black boxing of the technological processes (Beer, 2008; Bucher, 2012) potentially disempowering/reducing individual agency (Bodle, 2011);
- encouraging resistance measures: production of alternate models, alternate modes of commons and alternate multiple identities (Brunton and Nissenbaum, 2011).

There is also an obvious difference emphasis that can be made between some of the political implications as *a result or outcome of* the filtering done by SNSs, and the politics *of* the filtering itself. The former partly depend upon the uses to which that the data collection, for example, are put to or the breadth of information that is excluded or included in any filtering process. The latter has to do more with the politics that are encoded and enacted in the technologies of filtering (as a practise and as a form) themselves. For example, Bucher (2012: 1175) notes the ways in which the Facebook EdgeRank algorithm 'rewards' particular (SNS) desired user behaviour through the weighting of its calculations. This results in an enhanced visibility in news feeds of that user's behaviour and a diminished visibility for other less desirable users or their behaviours. Clearly, in an environment where people increasingly rely on SNS transmitted information as part of their everyday social practices, such filtering has ramifications (Bucher, 2012).

Many of the implications noted above have already been touted in various ways in the literature, others are seen as potential (yet to be fully realised) political implications**.** Each of these are worthy of detailed individual attention**.** However, there is also clearly a need for analyses that enables the breadth and depth of these possibilities across the spectrum of social filtering practices to be captured: the politics of the decisions and the decision-makers as to the inclusion and exclusion of information and peoples, and the ways in which these decisions are encoded and enacted through technology open up many areas for discussion.

Conclusion:

> Perhaps the most intriguing, even ominous aspect of near-future scenarios is 'ubicomp', ubiquitous computing, combining the 'internet of things' with the increasing integration of mobile wireless and internet media. RFID (radio frequency identification) tags..., biochips ... and a variety of wireless devices can be installed in anything from fridges to mousetraps, passports to pets, creating a vast demand for new storage and communication services. Meanwhile the convergence—for example Google's mobile OS Android, browser Chrome, VOIP service Voice and the Nexus One cellphone —indicate that touchscreens, integrated social networking, portable formats for books, games, music and feature films, and the improved camera and recording capabilities in handheld devices will increase both the quantity and the traffic in data over the foreseeable future. (Cubbitt et al., 2011:153)

It is not clear how far this filtering and interlinking of data about ourselves, our lives and our relations will extend and how intermeshed they will become online (already

gone farther than many envisaged). As Brunton and Nissenbaum (2011) note, we are globally collecting data and information without really knowing what possible amalgamations, uses and configurations of this data will be possible in the future. The appearance of Facebook's timeline is just one example of this potentiality for data to be presented in ways that were not anticipated at the point of collection and collation. Our social interactions are already influenced, shaped, and constrained or enhanced by technologies and practices that are not always clear, but that have political and social ramifications. As technologies become increasingly enmeshed, interoperable and sophisticated, as personal and social data becomes thicker and more extensive, and as our social activities take place increasingly online, these ramifications will be accentuated.

What is clear is that if we want to understand, influence, or reject these developments, then we need to gain a deeper understanding of what these practices mean and some of the possible consequences that may result. This consideration needs to take into account not just the people or the software or the technologies themselves but the imbrication of all of these. An analytical framework that can accommodate these factors is potentially one way of approaching this. This paper detailed a very small beginning step in that direction.

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